

Press Release: Adaptation Actions for a Changing Arctic Barents Report, 2017

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CHANGE AND ARCTIC OPPORTUNITIES

Change is coming to the Arctic, and communities must adapt. Both opportunities, fisheries and shipping routes opening, and challenges, extreme weather, are some key challenges to adaptation.

- The Gulf Stream makes Barents one of the warmest Arctic areas and the Barents Sea will be the first Arctic region to be free of sea ice year around.
- Retreating sea ice edges are opening new grounds for trawling and transport routes while impacting fish and animals dependent on sea ice.
- Rainfall, flooding, avalanches and landslides will increase.

Arctic Monitoring and Assessment Programme (AMAP) has released the Barents Area assessment report, a result of four years of research towards understanding the adaptive capacity of the Norwegian, Swedish, Finnish and Russian Arctic.

The Adaptation Actions for a Changing Arctic (AACA) report carefully documents environmental, climatic and social information to highlights the interactions between them. This knowledge supports and informs decision makers, communities and businesses, helping people adapt to the inevitability of the warming climate. The Barents Area Report, one of three requested by the Arctic Council, proposes how best to meet these changes with efficient adaptation.

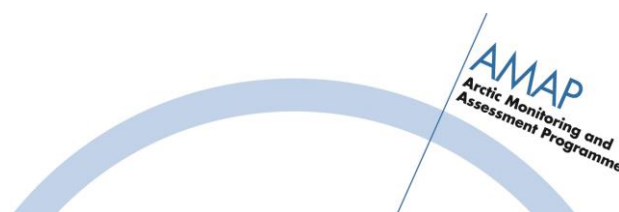
Expected change

The Barents Sea covers almost million and a half square kilometers of water has an important role for the atmosphere and the movement of ocean currents. Global warming in the Arctic occurs more than double than the rest of the world and research has projected the Barents Sea will be the first year round ice-free region.

As the Barents Sea opens, cooperation is essential. Fisheries rely on international cooperation and agreements for success when fish stocks migrate to new waters and new fish stocks appear because of increased ocean temperatures. Some fish species (e.g. Atlantic cod and haddock) will shift northwards due to climate change, while Arctic species will retreat and decrease. Animals who need sea ice will loose their habitat while open water animals, like baleen whales may benefit from the warming.

The open water will also change the weather, causing heavier rainfall. On the open sea, extreme wave heights and storms of over 100 km long could result. However, polar lows should decrease in the future.

More rain will fall in winter. On land, the rain will fall on snow, causing natural hazards. Landslides and avalanches will increase and flooding will become more frequent and



heavier. The rain on snow will freeze in layers, making it difficult for reindeer to reach their food through ice. As a result, more reindeer will die, impacting the people who depend on them.

The warmer temperature will continue to melt the frozen ground, permafrost, causing damage to infrastructure. Economic demand also becomes part of the picture - without it, there is no way to reap the benefits of additional ocean and land advantages.

Adaptation foundations and processes

Beyond natural factors, global, social, economic, political and cultural changes also directly affect adaptability. A complex web of issues from nature, economics and government directly affect local communities. "Using these resources means great responsibility for safeguarding local and indigenous communities." Dr. Grete Hovelsrud, Nord University, Bodø.

From the many people in the Arctic, Indigenous communities face a greater range of challenges including loss of identity, language, traditional food culture, and land. Beyond global warming there are everyday issues of poor economy and challenges of working with the mainstream authorities. By addressing these issues now, policy makers could avoid worsening them in the future.

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For **additional information** please visit the AMAP website for the [press kit with photos](#) and the [Barents Overview Report](#).

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About AMAP

AMAP is one of the six working group of the Arctic Council. AMAP is mandated to monitor and assess the status of the Arctic region with respect to pollution and climate change issues.

AMAP document levels and trends, pathways and processes, and effects on ecosystems and humans, and propose actions to reduce associated threats for consideration by governments.

AMAP produces sound science-based, policy-relevant assessments and public outreach products to inform policy and decision-making processes.

AMAP coordinates international activities that give us a complete knowledge of the whole Arctic. All our science is subjected to rigorous peer-review, making use of the most up-to-date results from both monitoring and research.

AMAP has completed the three 2017 Adaptation Actions for a Changing Arctic (AACA) reports. Each report addresses opportunities and challenges for how to adapt to Arctic change. They carefully document the Arctic, gathering information about both climate and society to understand the interactions between communities and the environment. In all three AACA pilot regions, climate is only one of many drivers causing change. These reports provide information that allow residence and policy makers to form decisions and create policy while considering these changes in the context of the Arctic and its people.



Fact Sheet: Adaptation Actions for a Changing Arctic, Barents Area

The Barents area is undergoing rapid environmental and societal change. These changes require sound scientific knowledge as a basis for developing and effective policy responses. Challenges and opportunities are specific to each region and community. Adaptation to change and building resilience is a dynamic process with shared knowledge and understanding being key. This process is constantly evolving in response to an increasing knowledge base as well as to the actual or expected effects of change.

The Barents area

The Barents area covers the northern regions of four countries: Norway, Sweden, Finland and Western Russia. Within the area, the population is generally aging and becoming more urbanized. Northern Arctic forest or taiga covers most of the mainland Barents area (54%) with Arctic tundra at 20% and glaciers currently at 4%. Barents Sea has 200 species of fish and is home to one of the most diverse sea mammal communities in the Arctic.

Changing climate

The Arctic is warming faster than the rest of the globe and is projected to continue to do so in the upcoming years. This warming effects precipitation, snow cover, permafrost, extreme weather events, sea ice and ocean currents. These effects interact with each other and will cause year-to-year variations making future impacts more challenging to understand.

Average temperature are forecasts to rise 3 - 10 degrees Celsius between 2010 and 2080 up to 20 degrees Celsius in winter time by the end of the century. A mid-range of emissions are used to project this growth. Permafrost, the earth that is normally frozen year round, is expected to be 30 - 40 per cent less in 2050 than in 2011.

Ocean effects

Weather research shows fewer polar lows in Norwegian polar waters, but more in the northern and central Barents area. Predicting climate warming's effects on extreme weather can be difficult, so the effects of these changes is hard to project. Sea level rise is expected to vary. As the heavy ice melts, some land will rise. For example, along the Norwegian coast, sea-level projects vary by half a meter from place to place.

Sea ice reduction leads to increased water area and evaporation. Up to 50 per cent more precipitation in the Arctic, coming as rain, not snow is projected?

Rain-on-snow

This increased rain will often fall on snow, presenting challenges on land including avalanches, floods and land slides.

In the winter the rain freezes into the snow, making layers of ice. Reindeer, and other grazers, have difficulty reaching their food through this ice, making the herd struggle. A higher number of reindeer die during warm winters, with the lack of food being a factor. Small rodents will also have trouble finding shelter and food. The predators who depend on



rodents as a food source will be affected.

This layer of ice also causes extreme flooding. Water on ice cannot be absorbed into the land and instead collects in rivers and lower areas. When floods take place they will cover wider areas and perhaps follow different routes because of this ice.

Socio-economic drivers of change

Growth in the Barents area will see economic growth rates well below the world average. To spite those gloomy numbers, all four countries will approximately double the size of their economies between 2015 and 2050.

Nordic economies have quickly adapted to change in the past. This should make them well positioned to meet future technological upheavals and challenges associated with the globalization economy. Because of the Russian Federation's economy and government's current situation, they could face greater challenges in modernizing their systems.

Indigenous people

Economic growth comes hand in hand with infrastructure development. Development would cause fragmentation of land used for reindeer herding, impacting Indigenous People's livelihoods.

Poverty, marginalization, and a close dependence on the environment for food, way of life, and culture cause Indigenous People to be especially vulnerable. Climate change is causing northward expansion of some serious diseases and is increasing risk of mobilization of toxic substances as well as the spores which cause highly virulent infections. Food and water security have also become an increasingly serious issue.

Natural resources

By 2050 the world is set to consume three times more natural resources. All four countries wish to exploit their natural resources, including oil and gas development, mining, and promoting the Northern Sea Route in shipping. Their Arctic policy statements emphasize that these developments should be made sustainably. Warming of the permafrost will cause thaws which damage infrastructure.

Global governance

Since the Cold War ended the Barents Region has seen increasing openness and collaboration. While this is currently experiencing more strain than previously, nevertheless all countries have shown their willingness to cooperate. The EU and Norway have pledged to reduce greenhouse gas emissions by 40 per cent below 1990 levels by 2030, while Russia has adopted a 25 - 30 per cent reduction.

Currently there are two Arctic legally binding agreements. One governing cooperation of search and rescue and other in cooperation for oil spill response as well as rules governing fisheries in the central Arctic Ocean.

